Development of a Nursing Clinical Data Model for Neuromuscular Processes: A content analysis of the Portuguese Nursing Customization

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Informatics are part of most of our daily activities, and healthcare is also part of this evolution, particularly in the last decades. Despite its short history, nursing health systems have revolutionized nursing practice by requiring the use of a classification that propelled the discussion of the nurse's role and autonomous field. As this discussion was initially performed locally, with each ward developing a customization to approach the reality of each context, this lead to the development of multiple data with the same meaning, as there was no standard regarding the construction of diagnosis and interventions (Paiva et al., 2014). As part of a project developed by Nursing School of Porto (ESEP) to standardize diagnostics and interventions, and to introduce formal knowledge in the nursing process, this study targets the neuromuscular processes focused on the impact in the individual, and the development of a nursing clinical data model (NCDM). To develop this NCDM, a content analysis of the active national customization as of 2011 from the public health services' nursing information system (Sistema de Apoio à Prática de Enfermagem – SAPE®) was performed. Data collected observed ethical requirements and were provided by ESEP.

From the analysis of the data, a total of 1757 diagnostic formulated by the local customization teams were related to the neuromuscular processes. Criteria for exclusion included redundant, unspecific, positive, caregiver and parental related diagnostics, resulting in the *corpus* with a total of 977 diagnostics. Content analysis was performed based on Bardin's perspective (Bardin, 1977), with the ICNP concepts and the ISO 18104:2014 to be used as rules of codification (Marin, Peres, & Dal Sasso, 2013). Codification resulted in 81 context units representing a total of 3 categories, defined as clinical findings (e.g. aphasia, spasticity), negative judgment diagnoses (e.g. impaired communication) and transition properties (e.g. preparation and knowledge). The content analysis was validated by experts in the field of nursing informatics and the NCDM.

Interoperability is crucial for the development of a more evidence-based practice and for the standardization of the assessment of care. This study not only demonstrates the need to standardize data, but also the importance of neuromuscular processes in nursing practice. We hope to contribute to the development of nursing clinical data model that evidences the nurses' role regarding neuromuscular processes, optimizing the decision-making process with direct impact in the individual and health policies through the development of more reliable health indicators regarding nursing care.

Keywords: Clinical data model; nursing; neuromuscular processes; content analysis.

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